Work Order ID 85628

August-27-12 10:53:20 AM

85628

Page 1

Item ID: D212-664-207 Accept Setup Start '*N900040100* **Revision ID:** Item Name: Crosstube Low Standard Aft **Start Date:** 12/06/2012 Start Oty: 1.00 **Cust Item ID: Required Date:** 26/06/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Process Plan: MCJ Date: 12/08/27 Tooling: Approvals: SPC (Y/N): Date:___ Date: Sequence ID/ **Operation** Set Up/ Tool ID Tool # Plan Reject Accept . Reject Insp. Work Center ID Description **Run Hours** Code Qty. Number **Qty** Stamp **Draw Nbr Revision Nbr** D212-664-247 Rev B (DÉO) 100 0.00 DOCUMENT CONTROL *100* DC Memo Document Control Photocopy bluefile and create labels as per PPP D212-664-207 CHG002 110 Pick Kit 0.00 Packaging *110* 12-9-13 Packaging 0.00 Memo Packaging 120 0.00 *120* **BENDING MACHINE - CROSSTUBES** . CNC Bend 2 0.00 Memo CNC Alpha 160 Bender Bend tube as per Dwg D212-664-247 using CNC bender program

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NCR:	Yes	/ No	•			WORK O	RDER NON-C	ON	NFORN	MANCE / UI	PDATE		QA Closed:	Dat	- و.	. 4
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		Bending				Bend			Ģrain				Ovalized]		Pressure/Forced
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	Cracks					Broken/Dam	aged		Inspecti	on Incomplete			Part Incorre	çt		Weld
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	Cuffs					Contamination	า		Mainte	nance		L	Part Moved			
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		Inspectio	n Strip in	Ťube		Cut Too Short	•		Misread	•			Power Loss/	'Surge		Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish Folio

Page 2

August-27-12 10:53:20 AM Item ID: D212-664-207 Accept *N900040100* Setup Start **Revision ID:** Item Name: Crosstube Low Standard Aft **Start Date:** 12/06/2012 Start Qty: 1.00 **Cust Item ID: Required Date:** 26/06/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Start Process Plan: Approvals: Date: **Tooling:** Date: Stop QC: Date: SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Accept Reject Reject Insp. **Work Center ID** Description **Run Hours** Code Qty Qty Number Stamp 130 QC15- Crosstube Dimensional Check *130* QC Memo Quality Control 140 0.00 Crosstubes *140* Crosstubes 0.00 Memo Crosstubes ****** ENSURE PROPER JIG POSITIONING ******* 1-Drill Rivet holes as per Dwg D212-664-247 using DT8972.***Use T-Pin*** 2-Drill pilot holes in tube as per Dwg D212-664-247 using DT8550 and DT8551 3-Ream hole to finish size in tube as per Dwg D212-664-247 4-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-247

5-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-

247

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WORK Ord	er				 -	Rework	1		Skid-tube	Crosstube		Water Jet	Engineering
Part !	Nο					Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
, 4, 7						Use-as-is	1	1	noforming	Finishing		e/Packaging	Other
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	Bend	ing				Bend		Grain			Ovalized		Pressure/Forced
	Cent	re Not Co	ncentr	ic to O/S		BOM/Route	L	Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Crac	ks				Broken/Damaged		Inspecti	ion Incomplete		Part Incorre	ct	Weld
	Crushed/Crimped					Burrs		Instruct	ions Incomplete/U	nclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs					Contamination		Mainte	enance		Part Moved		
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Misread

Out of Calibration
Out of Sequence

Outside Dimensions

Offset

Other

Power Loss/Surge

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish Folio

Page 3

August-27-12 1	0:53:20 AM			ัดวท	1/A"							Page	3
Item ID: Revision ID:	D212-664-2		-	Accept	*N900	040	100)*	Setup		*N	S1*	
Item Name: Start Date: Required Date: Reference:	12/06/2012	w Standard Aft Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:	D:				Stop	*N:	S2*	
Approvals:	Process Pla	an:	Date:	Tooling:	Da	ate:	- 		Run	Start	171	R1*	
	QC:		Date:	_ SPC (Y/N):		ite:				Stop	*N	R2*	
Sequence ID/ Work Center II 150 *150* QC Quality Control 160 *160* HandFXtube)		eteness to step on W/O LATEX GLOVES WHEN	0.00	Tool ID	Tool #	Plan Code	Accept Qty	Qty		Reject Number	Insp. Stamp	_
Hand Finishing Cros	stubes		LATEX GLOVES WHEN CROSSTUBE WITH WAS	0.00 I HANDLING CROSSTUI 5H'N WIPE	BE***			·	·		,		
*180 *180* Outsource2 Outsource process - 1	NDT			0.00 0.00 I HANDLING CROSSTUI I 038	3E***	·	·		- <i>L</i>	12-	09-10	<u> </u>	_
		Issue P/O: Level 2 Attac	LPI as per AST. th copy of NDT results to	M 1417 work order							Section 1		

											DQA:	Date	: <u> </u>
NCR:	Yes /	' No				WORK ORDER NON-	COI	NFORN	MANCE / UPI	DATE	QA Closed:	 Date	
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Work Orde	er:					Rework	٦		Skid-tube	Crosstube	7	Water Jet	Engineering
Part N	No					Scrap		r	Machining	Small Fab	4	d. Eng. Coor.	Quality
NCR 1	No					Use-as-is Work Order Update			noforming Large Fab	Finishing Composite	Rec/Sto	re/Packaging Supplier	Other
Root					Descri	ption of work order update		Initial	Act	tion	Sign &		
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	Crushed/Crimped					Burrs		Instruct	ions Incomplete/	Unclear	Part Lost/N	issing	Wrong Stock Pulled
	Cuffs					Contamination		Mainte	nance		Part Moved		
	Пн	eat Trea	it			Countersink		Mislabe	eled		Positioned '	Wrong _	
	In	spection	n Strip in	Tube		Cut Too Short		Misread	1	Γ	Power Loss	/Surge	Other
	Inspection Strip in Tube					Drill Holas		Offcot			_		

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-27-12 10:53:20 AM Item ID: D212-664-207 Accept *N900040100* Setup Start **Revision ID:** Item Name: Crosstube Low Standard Aft **Start Date:** 12/06/2012 Start Oty: 1.00 **Cust Item ID: Required Date:** 26/06/2012 Req'd Oty: 1.00 **Customer:** Reference: Run Start Process Plan: **Approvals:** Date: _____ Tooling: Date: Stop QC: ______ Date: ____ SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool# Plan Reject Accept Reject Insp. **Work Center ID Description Run Hours** Qty Code Qty Number Stamp 190 Receive & Inspect for Damage & Mat'l Certs 0.00 Packaging *190* Packaging 0.00 Memo Packaging *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Ensure copy of NDT results attached to work order. 200 QC5- Inspect part completeness to step on W/O QC Memo Quality Control *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D212-664-207 204 Crosstubes Chemical Conversion 0.00 12-9-18 *204* HandFXtube 0.00 Memo Hand Finishing Crosstubes *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN CROSSTUBE AND CUFF BEFORE CHEMICAL CONVERSION

								DQA:	Date	·			
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Work Ord	er.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
WOIR OIG	٠, .				· · · · · · · · · · · · · · · · · · ·	Rework	7		Skid-tube (Crosstube		Water Jet	Engineering
Part I	No.					Scrap	1		——	Small Fab	Pro	d. Eng. Coor.	Quality
	,					. Use-as-is]	Therm	noforming	Finishing	Rec/Stor	re/Packaging	Other
NCR	No.					Work Order Update]		Large Fab C	omposite		Supplier	
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	Cracks					Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct _	Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/Uncl	lear	Part Lost/M	issing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte	nance		Part Moved		
		Heat Trea	at			Countersink		Mislabe	eled		Positioned \	V rong	
		Inspectio	n Strip in	Tube		Cut Too Short		Misread	d		Power Loss/	Surge	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-27-12 10:53:20 AM Item ID: D212-664-207 Accept *N900040100* Setup Start **Revision ID:** Item Name: Crosstube Low Standard Aft Start Date: 12/06/2012 Start Qty: 1.00 **Cust Item ID: Required Date:** 26/06/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Start Process Plan: Approvals: Date: Tooling: Date: Stop Date: SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Reject Accept Reject Insp. **Work Center ID** Description **Run Hours** Code Oty Otv Number Stamp 206 QC7-Inspect Chemical Conversion Coat *206* 0.00 Memo Quality Control *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 210 0.00 Crosstubes *210* 12-9-18 Crosstubes 0.00 Memo Crosstubes *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1-Rivet and assemble Cuffs with T-Pin in the through bolt holes as per Dwg

D212-664-247. with Sika flex in Between tube & Cuff

A/R SIKAFLEX -241/-291 BATCH:

								DQA:	Date: _	1 , .	
NCR: Ye	s / No	_		WORK ORDER NON-G	CONFORM	//ANCE / UPD		QA Closed:	Date:	•	
Work Order:				DISPOSITION			AGAINST DEI	PARTMENT/	PROCESS		
Part No).			Rework Scrap Use-as-is Work Order Update	Therm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. e/Packaging Supplier	Engineering Quality Other	
Root				Description of work order update	Initial	Actio	on	Sign &			
Cause	Date	Step	Qty	or Non-conformance	Chief Eng	Descrip	ption	Date	Verification	QC Inspector	_
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Process											
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Landin	g Gear	General		_	 _	
	Bending	Bend		Grain	Ovalized	Pressure/Forced
	Centre Not Concentric to O/S	BOM/Route		Hardware	Over/Under tolerance	Temperature/Cure
	Cracks	Broken/Damaged		Inspection Incomplete	Part Incorrect	Weld
	Crushed/Crimped.	Burrs		Instructions Incomplete/Unclear	Part Lost/Missing	Wrong Stock Pulled
	Cuffs	Contamination		Maintenance	Part Moved	-
	Heat Treat	Countersink		Mislabeled	Positioned Wrong	 _
	Inspection Strip in Tube	Cut Too Short		Misread	Power Loss/Surge	Other
	Ripples in Bend	Drill Holes		Offset		
	Torque Waves in Extrusion	Drawing		Out of Calibration		
	Turning Sequence	Finish		Out of Sequence		
ſ	Wave/Twist in Tube	Folio	Г	Outside Dimensions		

FAULT CATEGORY

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Unapproved

August-27-12 10:53:20 AM Item ID: D212-664-207 Accept *N900040100* Setup Start **Revision ID:** Item Name: Crosstube Low Standard Aft **Start Date:** 12/06/2012 Start Qty: 1.00 Cust Item ID: **Required Date:** 26/06/2012 **Req'd Qty:** 1.00 **Customer:** Reference: Run Start Process Plan: Approvals: Date:_____ Tooling: Date: Stop Date: SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Accept Reject Reject Insp. Work Center ID Description **Run Hours** Qty Code **Qty** Number Stamp 215 QC5- Inspect part completeness to step on W/O *915* Memo Quality Control *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** ***Inspect cuff with T-Pin*** 220 Spray Painting per OSI005 4.2 0.00 SprayPaint *220* 12-9-19 SprayPaint 0.00 Memo **Spray Painting** *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME: 121746

Start Time: 6:30 Fininsh Time: 7:15

PAINT: 123003 Start Time: 11:15 Finish Time: 12:00

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NCR:	Yes	/ No				WORK ORDER NON-C	100	NFORM	MANCE / UPD					
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WORK OTC	C1.					Rework	1		Skid-tube	Crosstube		Water Jet		Engineering
Part f	Vo.					Scrap	1	l .	Machining	Small Fab	Pro	d. Eng. Coor.		Quality
						Use-as-is	1	Therm	noforming	Finishing	Rec/Sto	re/Packaging		Other
NCR I	No.					Work Order Update]		Large Fab	Composite		Supplier[
Root			l		Descri	tion of work order update		Initial	Actio	on .	Sign &		_	
Cause		Date	Step	Qty		or Non-conformance	1	ief Eng	Descrip	otion	Date	Verification	١	QC Inspector
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	Centre Not Concentric to O/S					BOM/Route		Hardwa			Over/Under	1		Temperature/Cure
	Cracks					Broken/Damaged		-	on Incomplete		Part Incorre			Weld
	Crushed/Crimped.					Burrs	_	4	ions Incomplete/Ur	nclear	Part Lost/M	- ,		Wrong Stock Pulled
		Cuffs				Contamination		Mainte			Part Moved			
		Heat Trea	it		<u></u>	Countersink		Mislabe	eled		Positioned \	V rong		1
		Inspectio	n Strip in	Tube		Cut Too Short		Misread	t		Power Loss,	'Surge	L.	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-27-12 1	0:53:20 AM				17 ()							ruge ,
Item ID: Revision ID:	D212-664-20			Accept	*N900	040	100)*	Setup	Start	*N	S1*
Item Name: Start Date: Required Date: Reference:	Crosstube Lov 12/06/2012 26/06/2012	v Standard Aft Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:	D:				Stop	*N	S2*
Approvals:	Process Pla	n:	Date:	Tooling: SPC (Y/N):		ite:			Run	Start Stop	17	R1* R2*
Sequence ID/ Work Center II 230	0	Operation Description QC14- Inspect Spray Pa	int	Set Up/ Run Hours	Tool ID	Tool#	Plan Code	Accept Qty	t Rej Qty		Reject Number	Insp. Stamp
230 QC Quality Control		Memo Wrap in pla	istic bag to protect from	0.00 scratches								M16 09 20
²⁴⁰ * 24 0*		Crosstubes		0.00				,				112.09.2
Crosstubes Crosstubes		1-Abrade m	e as per Dwg D212-664- nating surfaces of support ea with 4105S wash 'n' w	t and crosstube with 400 gri	t sandpaper,			_/				<u>Y] 160]</u> · C
		the ta	IIOOO WASII II W	ripe								

2-Install supports with Proseal 890 per DSI9563 and QSI 015 A/R Proseal 890 Batch: 123 103

3- Torque bolts as per dwg _ \land 12 \cdot \cdot 21 0

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NCR:	Yes ,	/ No				WORK ORDER NON-	COI	NFORN	MANCE / UP	DATE		QA Closed:	Dat	e:	
) (() . O d						DISPOSITION				AGAINST	DE	PARTMENT	/PROCESS		
Work Orde	er: _					Rework	٦l		Skid-tube	Crosstube			Water Jet	\neg	Engineering
Part N	No					Scrap Use-as-is	-	יו	Machining noforming	Small Fab Finishing			d. Eng. Coor. re/Packaging		Quality
NCR I	No					Work Order Update			Large Fab	Composite		ince/stol	Supplier		
Root					Descri	otion of work order update	T	Initial	Act	tion		Sign &			
Cause		Date	Step	Qty	C	or Non-conformance	Ch	nief Eng	Desc	ription		Date	Verification	1	QC Inspector
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		ending				Bend		Grain				Ovalized			Pressure/Forced
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		racks				Broken/Damaged		Inspecti	on Incomplete			Part Incorre	ct		Weld
		rushed/	Crimped.			Burrs		Instruct	ions Incomplete/	Unclear		Part Lost/M	issing		Wrong Stock Pulled
	Cuffs					Contamination		Mainte	nance			Part Moved			
	□⊦	leat Trea	t			Countersink		Mislabe	led	•		Positioned \	N rong		
		nspection	n Strip in	Tube		Cut Too Short		Misreac	i			Power Loss/	/Surge		Other
		lipples in	Bend			Drill Holes		Offset							

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-27-12 10:53:20 AM

Item ID: D212-664-207 Accept *N900040100* Setup Start **Revision ID:** Item Name: Crosstube Low Standard Aft **Start Date:** 12/06/2012 Start Qty: 1.00 **Cust Item ID: Required Date:** 26/06/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Process Plan: _____ Date: ____ Tooling: Approvals: Date: QC: _____ Date: ____ SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Accept Reject Reject Insp. Work Center ID Description **Run Hours** Code Qty Qty Number Stamp 250 QC5- Inspect part completeness to step on W/O *250* QC Memo Quality Control 255 Pick Kit 0.00 *955* 12/09/21 JB Packaging 0.00 Memo Packaging 260 QC4- 100% Inspect kits for completeness *260* Memo Quality Control

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NCR:	Yes	/ No				WORK ORDER NON-O	100	NFORM	AANCE / UP	DATE					•
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Work Ordi	٠					Rework	1		Skid-tube	Crosstube	٦		Water Jet		Engineering
Part I	No.					Scrap	1		Machining	Small Fab	1	Pro	d. Eng. Coor.		Quality
	•					Use-as-is	1	Therm	noforming	Finishing	7	Rec/Stor	e/Packaging		Other
NCR I	۷o.					Work Order Update]		Large Fab	Composite]		Supplier		
			1								-				
Root			 			ption of work order update	1	Initial		tion		Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Desc	ription	4	Date	Verificatio	n	QC Inspector
Doc/Data	\sqcup						Ì								
Equip/Tooling	Ш							·							
Operator							İ								
Material	Щ														
Setup	Щ		!												
Other													i		
Process															
Supplier															
Training															
Unapproved				<u> </u>			1				╝				
						F	AUI	T CATE	GORY		_				
Landi	ng (Bear			_	General	_	-			_	İ			7
		Bending				Bend		Grain		_	╛	Ovalized			Pressure/Forced
	Centre Not Concentric to O/S					BOM/Route	L	Hardwa	re			Over/Under	tolerance	L	Temperature/Cure
	Cracks					Broken/Damaged		Inspecti	ion Incomplete		\rfloor	Part Incorre	ct	L	Weld
	Crushed/Crimped.					Burrs		Instruct	ions Incomplete/	'Unclear		Part Lost/M	issing		Wrong Stock Pulled
	Cuffs					Contamination		Mainte	enance			Part Moved			
		Heat Trea	it			Countersink		Mislabe	eled			Positioned V	V rong		_
		Inspectio	n Strip in	Tube		Cut Too Short		Misread	t			Power Loss/	'Surge		Other

Offset

Out of Calibration
Out of Sequence

Outside Dimensions

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drill Holes

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Page 9

August-27-12 1	0:53:20 AM			(),)()							r age 9
Item ID: Revision ID:	D212-664-20	07		Accept	*N900	040	100)*	Setup Sta	rt *N	S1*
Item Name:	Crosstube Lov	w Standard Aft							Sto	p *\1	S2*
Start Date:	12/06/2012	Start Qty: 1.00	*1*		Cust Item I	D.				1.71	\ 7/
Required Date: Reference:	26/06/2012	Req'd Qty: 1.00	*1*		Customer:	υ.					
Approvals:	Process Pla	ın:	Date:	Tooling:	Da	nte:]	Run Sta	! <i>\</i>	R1*
	QC:		_ Date:	SPC (Y/N):	Da	ite:			Sto	*N	R2*
Sequence ID/ Work Center II 270)	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
* 27 0* Packaging		Packaging								1/9/2	
Packaging		Memo Identify an	d pack for shipping as p	0.00 er PPP D212-664-207 S バ グ						7	0
280		QC21- Final Inspection -	· Work Order Release	0.00							
280 QC Quality Control		Memo		0.00					MLJ	12-0	75-6
Quality Collifol										M)	F-21

											DQ	\: Date	e: _	٠
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UP	DATE				•
											QA Close	d: Date	e:	
Work Orde	ar.					DISPOSITION				AGAINST DE	DEPARTMENT/PROCESS			
Work Ord	_1.					Rework	7		Skid-tube	Crosstube]	Water Jet [\neg	Engineering
Part I	Vo.					Scrap	1		Machining	Small Fab	Р	rod. Eng. Coor.	\neg	Quality
						Use-as-is	1	Thermoforming Finishing			1	ore/Packaging	٦	Other
NCR I	۷o.					Work Order Update			Large Fab	Composite]	Supplier		
							,							
Root					Descri	ption of work order update		Initial	Ac	tion	Sign &			
Cause		Date	Step	Qty		or Non-conformance	Cr	nief Eng	Desc	ription	Date	Verification		QC Inspector
Doc/Data														
Equip/Tooling							Ì							
Operator											,			
Material														
Setup														
Other														
Process													İ	
Supplier														
Training				1										
Unapproved														
			•			F	AUI	LT CATE	GORY		•			
Landi	ng (Gear				General					_	_		
	Bending				Bend		Grain			Ovalized	. [Pressure/Forced	
		Centre No	ot Concer	ntric to	o/s	BOM/Route		Hardwa	re	[Over/Under tolerance			Temperature/Cure
		Cracks				Broken/Damaged		Inspect	ion Incomplete		Part Incorrect			Weld
	<u> </u>	Crushed/Crimped				Rurrs		Instructions Incomplete/Unclear			Part Lost/Missing			Wrong Stock Pulled

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

Part Moved

Positioned Wrong
Power Loss/Surge

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Cuffs

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Picklist Print

August-27-12 10:53:24 AM

Work Order ID: 85628

85628

Parent Item:

D212-664-207

D212-664-207

Parent Item Name: Crosstube Low Standard Aft

Start Date: 12/06/2012

Required Date: 26/06/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:A New Issue 07.09.12 EC verified by: JLM IPP Rev:B ECN 1100p 08-01-11 DD verified by: EC IPP Rev:C ECN 1121 08-02-25 DD verified by:eC

IPP Rev: D QC5 replaced by QC15 at step 5 KJ Verified by: ec

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664- 207TRNRevA		Manufactured	No			110	Each	0.0000	1	1	_		
*D212-664 Crosstube Turning Detail	1-207TF	RNRevA	*		138	9475	.		**		Rom 13	2-9-	13
D3660-1 CUFF	•	Manufactured	No			140	Each	20.0000	2 **	2			

Location	Loc Oty	Loc Code
LG	2	
80359	2	
ST477	10	
87445	10	
ST482	8	
53501	1	
76983	1	
88394	6	

B 87445 B 80359

Rm 12-9-17 Rm 12-9-17

											DQA:	Date:	1
NCR:	Yes	/ No	·			WORK ORDER NON-O	COL	NFORN	MANCE / UP	DATE			•
											QA Closed:	Date:	
W- 1 0 - 1						DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Work Ord	er: .					Rework	1	Skid-tube Crosstube			1	Water Jet	Engineering
Part I	No					I	Scrap Machining Small Fab			Pro	od. Eng. Coor.	Quality	
Faiti	NO	· · · ·				Use-as-is	` <u> </u>			Finishing	4	re/Packaging	Other
NCR I	No.					Work Order Update				Composite	1	Supplier	1
							-		·				
Root					Descri	ption of work order update		Initial	Ac	tion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data						•		İ					
Equip/Tooling													
Operator		•											
Material	Ш			·									
Setup												·	
Other	Ш										ļ	·	•
Process											i		
Supplier							1						
Training													
Unapproved									<u></u> .		<u> </u>		
							AUL	T CATE	GORY				
Landi		1			_	General	_	1		_	٦		.
	Bending					Bend	_	Grain		ļ	Ovalized	_	Pressure/Forced
	Centre Not Concentric to O/S				o/s	BOM/Route	\vdash	Hardwa			Over/Unde	<u>├</u>	Temperature/Cure
	Cracks				<u> </u>	Broken/Damaged	_	1	ion Incomplete		Part Incorre	<u> </u>	Weld
	Crushed/Crimped.				Burrs	_	-1	ions Incomplete/	'Unclear	Part Lost/N		Wrong Stock Pulled	
	Cuffs				<u> </u>	Contamination	<u></u>	Mainte	•		Part Moved		
	Heat Treat					Countersink		Mislabe			Positioned	_	7
1		Inspectio	n Strip in	Tube		Cut Too Short		Misread	i E		Power Loss	/Surge	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

August-27-12 10:53:24 AM

Work Order ID: 85628

CR3212-4-06

D212-664-207

Parent Item Name: Crosstube Low Standard Aft

85628

D212-664-207

Start Date: 12/06/2012

Required Date: 26/06/2012

Start Qty: 1.00

**

Required Qty: 1.00

CR3212-4-06

Parent Item:

Purchased

No

No

220

Each

796.0000

44

<u>Location</u>	Loc Qty	Loc Code	
ST329	503		•
122378	503		44
ST330	240		
120521	40		
122141	200		
ST331	53		· · · · · · · · · · · · · · · · · · ·
112492	18		
112794	8		
119717	27	•	
	240 Each	162.0000 4	4
		**	N 12.09 20

Location Loc Qty Loc Code LG 50 79932 13 826<u>56</u> 37 LG051 73 87833 73 MAT052 39 63407 6 67185 6 70067 18 72745 2

7

D3595-063-530

Manufactured *D3595-063-530*

RUBBER CUSHION

August-27-12 10:53:24 AM

Shop Packet Print

75783

Page 2

											DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-	or	NFORN	//ANCE / UPD	ATE		Data	•
·											QA Closed:	Date:	
Work Ord	ar.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
WOIK OIG	٠					Rework	1	Skid-tube Crosstube				Water Jet	Engineering
Part 1	No.					Scrap	Machining Small Fab			Pro	Quality		
	•					'			noforming	Finishing	Rec/Sto	re/Packaging	Other
NCR I	No.					Work Order Update			Large Fab	Composite		Supplier	
•													******
Root					Descri	ption of work order update		Initial	Actio	on	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descri	ption	Date	Verification	QC Inspector
Doc/Data								ļ					
Equip/Tooling	Ш		1										
Operator													
Material	Ш												
Setup													
Other									ı				
Process								1	İ				
Supplier							1		İ				
Training							1						
Unapproved													
						F	AUI	LT CATE	GORY				
Landi	ing (Gear				General		-		_	7	·	-
	-	Bending				Bend	_	Grain			Ovalized	_	Pressure/Forced
	Ш	Centre Not Concentric to O/S			o/s	BOM/Route	_	Hardwa	re		Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged		-i	on Incomplete		Part Incorre	}	Weld
	Crushed/Crimped.			Burrs		Instruct	ions Incomplete/U	nclear	Part Lost/M	issing	Wrong Stock Pulled		
		Cuffs				Contamination		Mainte	nance		Part Moved		
		Heat Trea	it			Countersink		Mislabe	led		Positioned \	-	
	Inspection Strip in Tube Cut			Cut Too Short		Misread			Power Loss,	'Surge	Other		

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

August-27-12 10:53:24 AM

Work Order ID: 85628

Parent Item:

85628

Location

D212-664-207

Parent Item Name: Crosstube Low Standard Aft

D212-664-207

Start Date: 12/06/2012

Required Date: 26/06/2012

Start Qty: 1.00

**

**

Required Qty: 1.00

D2940-1

Support

MS21920-28

Manufactured

Purchased

Manufactured

240

240

Each

23.0000

2

87921x1

No

No

LG052 79118 _82657 87921 Loc Qty Loc Code 23 2 又 20 Each 78.0000

Clamp(per MIL-DTL-8783C)

Location Loc Qty Loc Code FG 5 105884 5 LG050 55 118713 3 120054 2 122518 50 LG051 18 121440 8 122204 10 255 Each

Loc Code

D3428-1

Location Loc Qty ST042 13 83582 1 85228 12

85228

NCR: Yes / No WORK ORDER NON-CONFO	FORMANCE / UPDATE QA Closed: Date: AGAINST DEPARTMENT/PROCESS
DISPOSITION	AGAINST DEPARTMENT/PROCESS
Work Order: Rework	Skid-tube Crosstube Water Jet Engineering
Part No Scrap	Machining Small Fab Prod. Eng. Coor. Quality Thermoforming Large Fab Composite Supplier
Root Description of work order update Initial Cause Date Step Qty or Non-conformance Chief	
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier	

Landing (Gear	General						_	
	Bending	Bend		Grain		Ovalized		Pressure/Forced	
	Centre Not Concentric to O/S	BOM/Route		Hardware		Over/Under tolerance		Temperature/Cure	
	Cracks	Broken/Damaged		Inspection Incomplete		Part Incorrect		Weld	
	Crushed/Crimped	Burrs		Instructions Incomplete/Unclear		Part Lost/Missing		Wrong Stock Pulled	
	Cuffs	Contamination		Maintenance		Part Moved		-	
	Heat Treat	Countersink		Mislabeled _		Positioned Wrong		_	
	Inspection Strip in Tube	Cut Too Short		Misread		Power Loss/Surge		Other	
	Ripples in Bend	Drill Holes		Offset					
	Torque Waves in Extrusion	Drawing		Out of Calibration					
	Turning Sequence	Finish	Г	Out of Sequence					

Outside Dimensions

FAULT CATEGORY

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Wave/Twist in Tube

Folio

Training Unapproved

Picklist Print

August-27-12 10:53:24 AM

Work Order ID: 85628

Parent Item:

D212-664-207

Parent Item Name: Crosstube Low Standard Aft

Purchased

85628 *D212-664-207*

117677

118384 118927

119075

120308

Start Date: 12/06/2012

Required Date: 26/06/2012

Required Qty: 1.00

Start Qty: 1.00

MS21042L6

No		255	Each	869.0000	6	V
				*	·*	2
	Location	Loc	e Qty	Loc Code		.0 -
	314		578			
	122441		578		122	24411
	ST300		291		-,	

25

48

NAS1149D0663J Purchased

No

15 200 255 Each

0.0000

Purchased No 255

Each

122.0000

Location	Loc Qty	Loc Code	
ST340	50		
122416	50		
ST342	72		120187
120187	66		
120833	4		
121827	2		

											DQA:	Dat	е.	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UPDATE		OA Charada	Date		•
			·								QA Closed:	Dat	:e:	
Work Ord	er.					DISPOSITION			AGAIN	ST DE	PARTMENT	/PROCESS		
Work Ora	٠					Rework	7		Skid-tube Crosstu	be		Water Jet		Engineering
Part I	No.					Scrap	ſ	Machining Small F	ab	Prod. Eng. Coor.			Quality	
					-	Use-as-is Thermoforming Finishing					Rec/Sto	re/Packaging		Other
NCR No.				Work Order Update Large Fab Composi				ite		Supplier				
Root		<u> ' </u>			Descri	ption of work order update		Initial	Action		Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Description		Date	Verification	1	QC Inspector
Doc/Data														
Equip/Tooling			1											
Operator			:									1		
Material			ļ									ļ		
Setup														
Other														
Process						,								
Supplier							1							
Training														
Unapproved														<u> </u>
							AUI	LT CATE	GORY					
Landi	ing (Gear				General		_			-	•		-
	L	Bending			<u></u>	Bend		Grain			Ovalized			Pressure/Forced
		Centre Not Concentric to O/S				BOM/Route		Hardwa	re		Over/Under	tolerance		Temperature/Cure
	Cracks					Broken/Damaged	L	Inspecti	on Incomplete		Part Incorre	ct .		Weld
Crushed/Crimped.					Burrs		Instruct	ions Incomplete/Unclear		Part Lost/M	issing		Wrong Stock Pulled	
	Cuffs			Contamination]Mainte	enance		Part Moved					
	Heat Treat		Countersink		Mislabe	eled		Positioned Wrong			_			
		Inspection Strip in Tube				Cut Too Short		Misread			Power Loss,	/Surge		Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drill Holes

Drawing

Finish Folio August-27-12 10:53:24 AM

Work Order ID: 85628

Parent Item:

D212-664-207

Parent Item Name: Crosstube Low Standard Aft

85628

D212-664-207

Start Date: 12/06/2012

Required Date: 26/06/2012

Required Qty: 1.00

Start Qty: 1.00

AN6-41A

Purchased No

255

Each

89.0000

JB 12/09/21

Location	Loc Qty	Loc Code	$ \mathcal{S}_{0} $
ST340	50		04
122407	50		
ST342	39		· · · · · · · · · · · · · · · · · · ·
120423	9		
121825	30		12/825

NCR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE														
						•					QA Closed:	Date	:	
Work Orde	er: _					DISPOSITION	1		r1		T DEPARTMENT/PROCESS			
Part No.			Rework Scrap Use-as-is		ſ	Skid-tube Machining noforming	Crosstube Small Fab Finishing	i	Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other				
NCR No.				Work Order Update]		Large Fab	Composite		Supplier				
Root Cause		Date	Step	Qty	i	ption of work order update or Non-conformance	1	Initial nief Eng	Acti Descri		Sign & Date	Verification	QC Inspector	
Doc/Data	T^{+}		0106				 							
Equip/Tooling	H													
Operator	H													
Material	H													
Setup	H													
Other														
Process	П	_				N								
Supplier	П													
Training	П										,			
Unapproved	П													
						F	AUI	LT CATE	GORY					
Landi	ng Ge	ar				General		_			_			
		ending				Bend		Grain			Ovalized		Pressure/Forced	
		entre No	ot Conce	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure	
		cracks				Broken/Damaged		Inspecti	ion Incomplete		Part Incorre	ct	Weld	
		rushed/0	Crimped			Burrs		Instruct	ions Incomplete/U	Inclear	Part Lost/M	issing	Wrong Stock Pulled	
		Cuffs				Contamination		Mainte			Part Moved		·	
	∐⊦	leat Trea	it			Countersink		Mislabe	led	<u> </u>	Positioned \		***	
		nspection	n Strip in	Tube		Cut Too Short		Misread	1		Power Loss,	'Surge	Other	
	∐ R	tipples in	Bend			Drill Holes	L	Offset						
	1 Іт	orque W	laves in F	xtrusio	n	Drawing		Out of 0	Calibration					

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

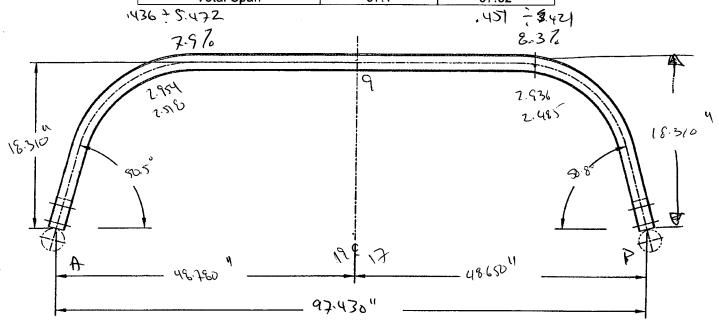
Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	25678
Description: Crosstube Low Aft (205/212)	Part Number:	D212-664-207
Inspection Dwg: D212-664-247 Rev: B		Page 1 of 1

Required Dimension	Min	Max
Height	18.16	18.42
1/2 Span	48.55	48.81
Angle	49	52
Total Span	97.1	97.62



Comments						
Sine A-z	チックル	crushing	19 PASSES.			
SED MADLE	z 9	PASIS.				
Sine B z	8.36	Cheshi	@ 17 PASTO			

QC15 Inspection	OAS"		
Date	16	176917	
	9.52		

Rev	Date	Change	Revised by	Approved
Α	08.02.29	New Issue	KJ/JM , ,	
В	10.04.01	Dwg Rev updated	KJ KJ	/2
			· · · · · · · · · · · · · · · · · · ·	1

Dart Aerospace Ltd

	-										
W/O:			W	ORK ORDER CHANG	ES						
DATE	STEP	PROCEDURE CHANGE				Date	ate Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector		
							<u> </u>				
							-				
Part No	•	PAR #:	Fault Cate	gory:	_ NCR: Yes	No DQ					
	R	esolution:	Disposition	n:	_ QA: N/C (closed:	sed: Date:				
NCR:			WORK ORD	ER NON-CONFORMA	NCE (NC	R)					
DATE	STEP	Description of NC		on B	Verifi	cation	Approval	Approval			
DATE	SIEF	Section A	Initial Chief Eng	Action Description Chief Eng	Sign Date	& Sect	tion C	Chief Eng	QC inspector		
								1			
		·					<u>.</u>				
1	1	1	i i		1	1		I	1		

Item	Qty -247	Qty -247B	Part Number	Description
1	Х		D212-664-247	CROSSTUBE ASSEMBLY (205/212 LOW AFT)
2		х	D212-664-247B	CROSSTUBE ASSEMBLY (205/212 LOW AFT)
3	1	1	D6008-132	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	2	2	D3660-1	CUFF
7	4	4	MS21920-28	CLAMP (OR MS21920-30)
8	44	44	CR3212-4-06	RIVET (OR M7885/3-4-06)
9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
10	A/R	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6008-132

FINISHED LENGTH = 128.268±0.020 (BEFORE BENDING/TRIMMING)

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
TOLERANCES ARE PER DART QSI 018 UNILESS OTHERWISE NOTED.

UNITS: INCHES UNLESS OTHERWISE NOTED.

BREAK SHARP EDGES: 0.005 TO 0.010 MAX.

IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.

7) WEIGHT: D212-664-247 = 36.6 lbs (PER IIN-D212-664)
D212-664-2478 = 36.6 lbs (PER IIN-D212-664)
8) PART IS SYMMETRIC ABOUT CENTERLINE.

WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD

10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPTUP TO 10% IS ALLOWED IN AREA NOTED.

11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
12) INSTALL D2940-1 SUPPORTUSING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

 INSTALL MS2 1920-28 CLAMPS (OR 30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.

 EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

16) INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.

17) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

SHOP COPY RETURN TO ENGINEERING UNCONTROLLED COPY SUBJECT TO AMENDMENT WITHOUT NOTICE WORK ORDER MC SOLOZIO 12/06/12

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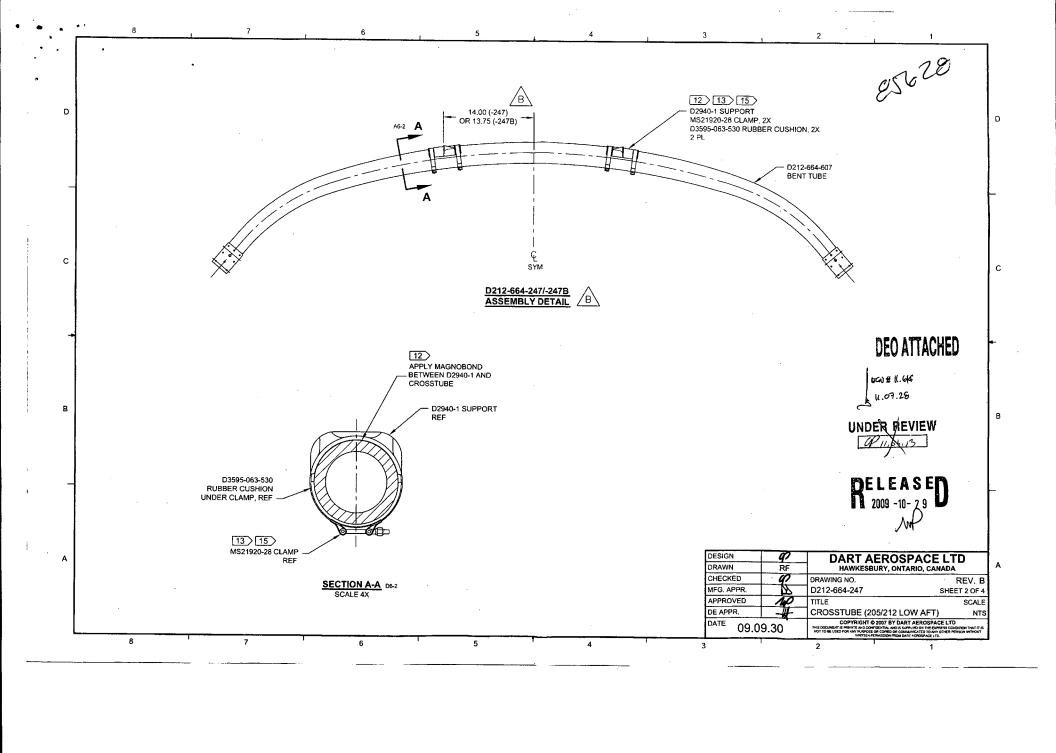
550# 11-614 11.07.28 UNDER REVIEW

REVISE GENERAL NOTES/PART LIST: UPDATE TO 09.09.30 CURRENT STANDARDS; ADD -247B (ZN C4-2, D5-2) NEW ISSUE 07.07.07 REV. DESCRIPTION DATE BY DESIGN DART AEROSPACE LTD DRAWN CHECKED DRAWING NO. REV. B MFG. APPR. D212-664-247 SHEET 1 OF 4 APPROVED SCALE TITLE DE APPR. CROSSTUBE (205/212 LOW AFT) NTS DATE COPYRIGHT © 2007 BY DART AEROSPACE LTD 09.09.30

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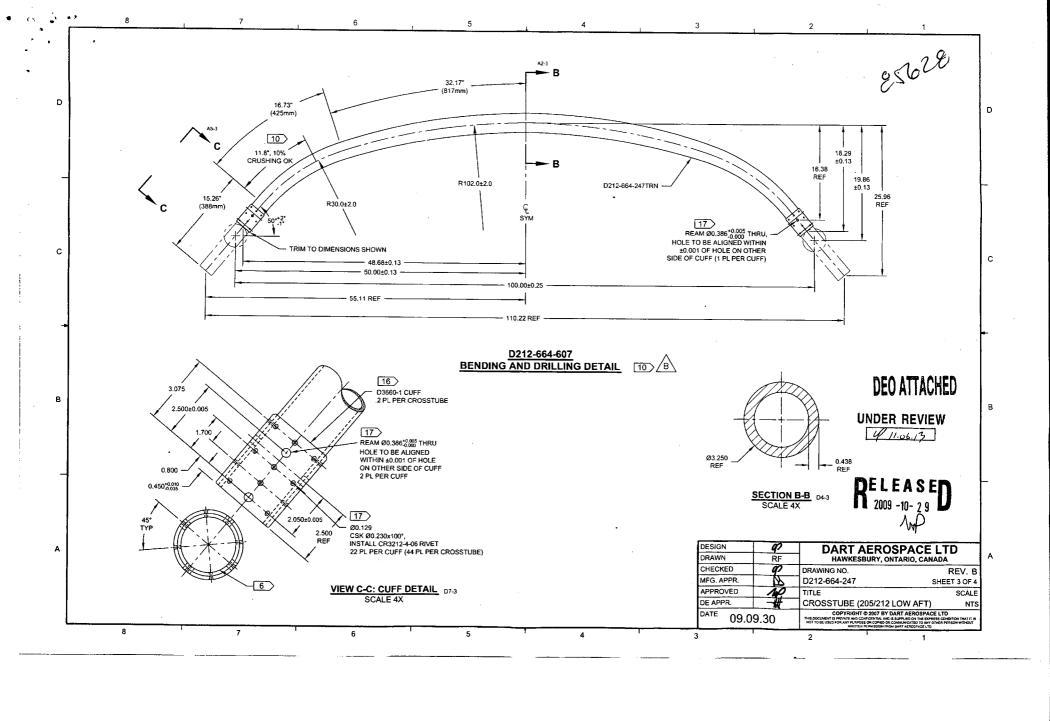
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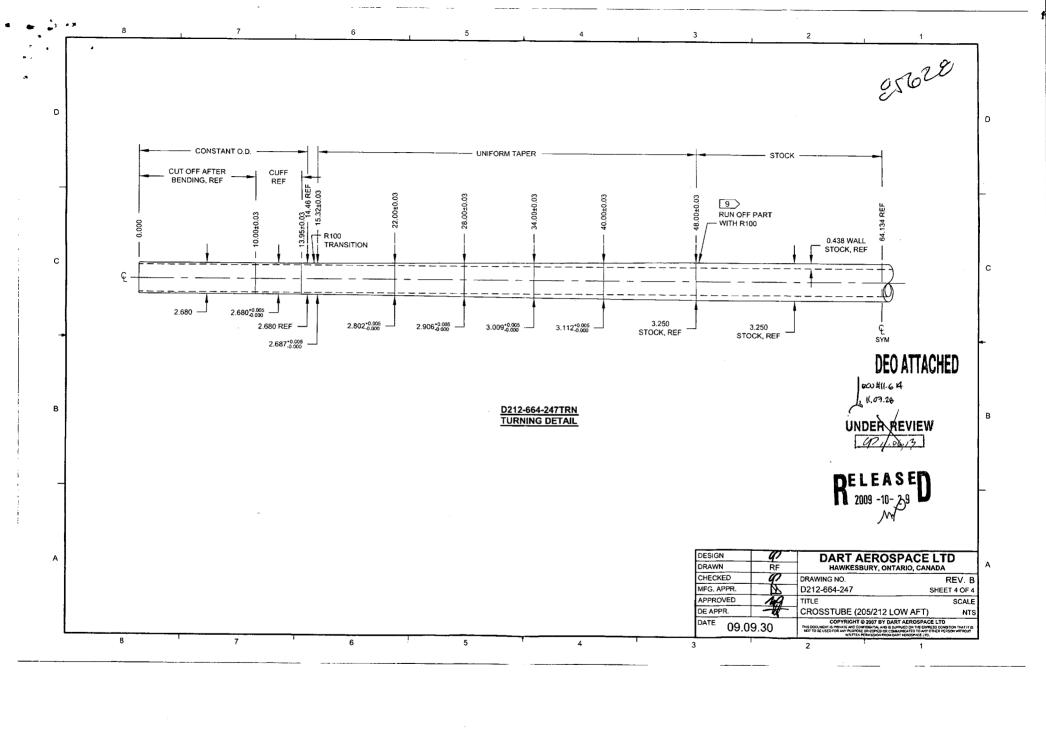
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DRAWING NO. D212-664-247	TITLE CROSSTUBE ASS'Y (205 LO		ROSPACE LTD D.E.O. N	O. 664-247 <b>-</b> B-1	SHEET NO. SCALE
DRAWN 9	CHECKED A	>S MFG. APPR.	APPROVED		SHEET 1 OF 1 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
DATE 11.07.	15 DATE /1.07	7. 7. DATE /	1.07.21 DATE	11/07/2) DA	

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL

25628

### CHANGE:

IS:

ltem	Qty -247	Qty -247B	Part Number	Description
9	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

#### WAS:

9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
				ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
				11 11 11 OE 100 27 E 11 E 17 E

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

### IS:

- 12) TO INSTALL D2940-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04° TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

#### WAS:

- 12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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### 5.2 STANDARD GEAR CROSSTUBES

Item	-107	-207	-209	Part Number	Description
	х			D212-664-107	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD
		х		D212-664-207	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT
			х	D412-664-209	CROSSTUBE INSTALLATION, 412 STANDARD AFT
6	1			D212-664-147	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD
7		1		D212-664-247	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT
8			1	D412-664-249	CROSSTUBE ASSEMBLY, 412 STANDARD AFT
				* D2893-1	SUPPORT
10	2	<u> </u>		* D3595-063-450	RUBBER CUSHION
11 12	4	<del> </del>		* MS21920-25	CLAMP (OR MS21042-26)
13	4	<del>                                     </del>		AN6-35A	BOLT
14	4	ļ		AN6-36A	BOLT
	6			MS21042L6	NUT (OR MS21042-6)
15 16	18	<del> </del>	<del> </del>	AN960JD616	WASHER
10					CURRORT
20		2		* D2940-1	SUPPORT RUBBER CUSHION
21		4		* D3595-063-530	CLAMP (OR MS21042-30)
22		4		∴MS21920-28	
23		14		AN6-40A -	BOLT BOLT
24		Z 2		-AN6-41A	
25		/6		MS21042L6	NUT (OR MS21042-6) WASHER
26		18		-AN960JD616/	WASHER
			1	* D2896-1	SUPPORT
30				* D3595-063-570	RUBBER CUSHION
32	·	<del> </del>	4	* MS21920-28	CLAMP
33 34		<del> </del>	2	* MS21920-30	CLAMP (OR MS21042-32)
35		<del>                                     </del>	4	AN6-40A	BOLT
36		<del> </del>	2	AN6-41A	BOLT
37		<del> </del>	6	MS21042L6	NUT (OR MS21042-6)
38		<del> </del>	18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
				+ D0050 4	CUEE
45	2			* D3659-1	CUFF
46		2	2	* D3660-1	RIVET (M7885/3-4-06)
47	44	44		* CR3212-4-06	RIVET (M7885/3-4-00)
48			44	* CR3212-4-07	MACT (MITOOGIO-T-OT)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-147/-247 OR D412-664-249 ASSEMBLIES ABOVE NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AAI SKIDTUBES.

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Revision: G

Date: 11.08.30



# LIQUID PENETRANT TEST REPORT

P- 10161

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AMILY BRAND SNETRANT	MACNAFIANA  4 - 6 7 MINIMUM DWELL TIME 45 MIN.		TROUBLELIGHT OUTPUT>100 fc @ SURFACE
PENETRANT REMOV	ER H > 3 MINIMUM DRY TIME >10 MIN.	OTHER	
EVELOPER S	MINIMUM DWELL TIME 30 MIN.	LIGHT METER S/N / 09 33	CAL DUE DATE CETT 33 300
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